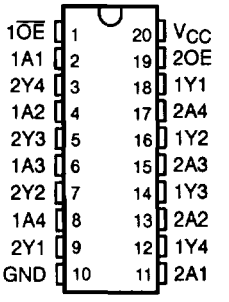
- *EPIC*™ (Enhanced-Performance Implanted CMOS) Submicron Process
- Typical V_{OLP} (Output Ground Bounce) < 0.8 V at V_{CC} = 3.3 V, T_A = 25°C
- Typical V_{OHV} (Output V_{OH} Undershoot) > 2 V at V_{CC} = 3.3 V, T_A = 25°C
- Supports Mixed-Mode Signal Operation on All Ports (5-V Input/Output Voltage With 3.3-V V_{CC})
- Package Options Include Plastic Small-Outline (DW), Shrink Small-Outline (DB), and Thin Shrink Small-Outline (PW) Packages

DB, DW, OR PW PACKAGE
(TOP VIEW)



description

This octal buffer/line driver is designed for 2.7-V to 3.6-V V_{CC} operation; it can interface to a 5-V system environment.

The SN74LVC241 is designed specifically to improve both the performance and density of 3-state memory-address drivers, clock drivers, and bus-oriented receivers and transmitters. Taken together with the 'LVC240 and 'LVC244, these devices provide the choice of selected combinations of inverting and noninverting outputs, symmetrical $\overline{OE}$ (active-low output-enable) inputs, and complementary OE and $\overline{OE}$ inputs.

The SN74LVC241 is organized as two 4-bit line drivers with separate output-enable ($1\overline{OE}$, 2OE) inputs. When $1\overline{OE}$ is low or 2OE is high, the device passes data from the A inputs to the Y outputs. When $1\overline{OE}$ is high or 2OE is low, the outputs are in the high-impedance state.

To ensure the high-impedance state during power up or power down, $\overline{OE}$ should be tied to V_{CC} through a pullup resistor and OE should be tied to GND through a pulldown resistor; the minimum value of the resistor is determined by the current-sinking or the current-sourcing capability of the driver.

The SN74LVC241 is characterized for operation from –40°C to 85°C.

FUNCTION TABLES

INPUTS		OUTPUT
$1\overline{OE}$	1A	1Y
L	H	H
L	L	L
H	X	Z

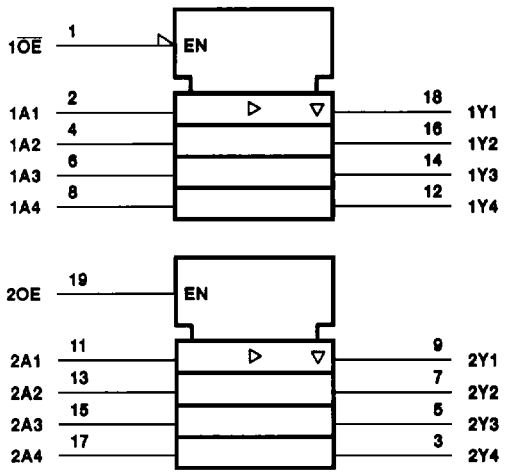
INPUTS		OUTPUT
2OE	2A	2Y
H	H	H
H	L	L
L	X	Z

PRODUCT PREVIEW

EPIC is a trademark of Texas Instruments Incorporated.

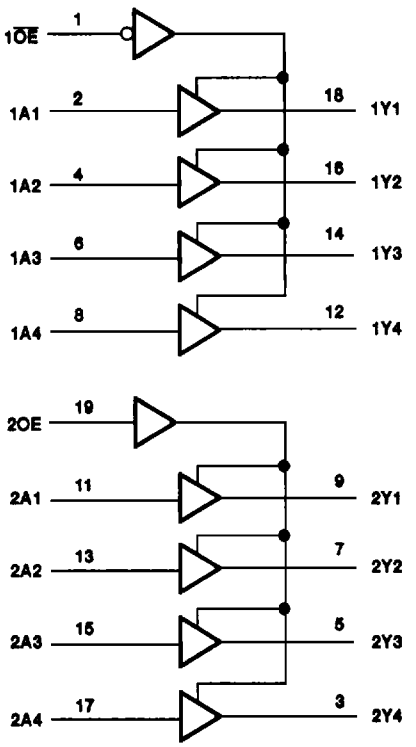
PRODUCT PREVIEW

logic symbol†



† This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.

logic diagram (positive logic)



absolute maximum ratings over operating free-air temperature range (unless otherwise noted)†

Supply voltage range, V_{CC} ..... −0.5 V to 6.5 V
Input voltage range, V_I (see Note 1) ..... −0.5 V to 6.5 V
Voltage range applied to any output in the high-impedance state
or power-off state, V_O (see Note 1) ..... −0.5 V to 6.5 V
Voltage range applied to any output in the high
or low state, V_O (see Notes 1 and 2) ..... −0.5 V to V_{CC} + 0.5 V
Input clamp current, I_{IK} (V_I < 0) ..... −50 mA
Output clamp current, I_{OK} (V_O < 0) ..... ±50 mA
Continuous output current, I_O (V_O = 0 to V_{CC}) ..... ±50 mA
Continuous current through V_{CC} or GND ..... ±100 mA
Maximum power dissipation at T_A = 55°C (in still air) (see Note 3): DB package ..... 0.6 W
DW package ..... 1.6 W
PW package ..... 0.7 W
Storage temperature range, T_{stg} ..... −65°C to 150°C

† Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

NOTES: 1. The input and output negative-voltage ratings may be exceeded if the input and output clamp-current ratings are observed.
2. This value is limited to 4.6 V maximum.
3. The maximum package power dissipation is calculated using a junction temperature of 150°C and a board trace length of 750 mils. For more information, refer to the *Package Thermal Considerations* application note in the 1994 *ABT Advanced BiCMOS Technology Data Book*, literature number SCBD002B.

recommended operating conditions (see Note 4)

			MIN	MAX	UNIT
V_{CC}	Supply voltage	Operating	2	3.6	V
		Data retention only	1.5		
V_{IH}	High-level input voltage	V_{CC} = 2.7 V to 3.6 V	2		V
V_{IL}	Low-level input voltage	V_{CC} = 2.7 V to 3.6 V		0.8	V
V_I	Input voltage		0	5.5	V
V_O	Output voltage	High or low state	0	V_{CC}	V
		3 state	0	5.5	
I_{OH}	High-level output current	V_{CC} = 2.7 V		−12	mA
		V_{CC} = 3 V		−24	
I_{OL}	Low-level output current	V_{CC} = 2.7 V		12	mA
		V_{CC} = 3 V		24	
$\Delta t/\Delta v$	Input transition rise or fall rate		0	10	ns/V
T_A	Operating free-air temperature		−40	85	°C

NOTE 4: Unused inputs must be held high or low to prevent them from floating.

PRODUCT PREVIEW

electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)

PARAMETER	TEST CONDITIONS		V_{CC}†	MIN	TYP‡	MAX	UNIT
V_{OH}	I_{OH} = –100 µA		MIN to MAX	V_{CC}–0.2			V
	I_{OH} = –12 mA		2.7 V	2.2			
			3 V	2.4			
	I_{OH} = –24 mA		3 V	2.2			
V_{OL}	I_{OL} = 100 µA		MIN to MAX			0.2	V
	I_{OL} = 12 mA		2.7 V			0.4	
	I_{OL} = 24 mA		3 V			0.55	
I_I	V_I = 5.5 V or GND		3.6 V			±5	µA
I_{OZ}	V_O = 5.5 V or GND		3.6 V			±10	µA
I_{CC}	$V_I = V_{CC}$ or GND,	I_O = 0	3.6 V			20	µA
ΔI_{CC}	One input at V_{CC} – 0.6 V,	Other inputs at V_{CC} or GND	3 V to 3.6 V			500	µA
C_i	$V_I = V_{CC}$ or GND		3.3 V				pF
C_o	$V_O = V_{CC}$ or GND		3.3 V				pF

† For conditions shown as MIN or MAX, use the appropriate values under recommended operating conditions.
‡ Typical values are measured at V_{CC} = 3.3 V, T_A = 25°C.

PRODUCT PREVIEW